

NTC Thermistors, Long Immersion Sensor with Connector



DESCRIPTION

Thermistor NTC sensor, with a negative temperature coefficient, measured in accordance with IEC 60539.

QUICK REFERENCE DATA	
PARAMETER	VALUE
Resistance value at 25 °C (for information)	11 979 Ω
Resistance at 80 °C	1704 Ω
Tolerance on R_{80} - value	± 2 %
$B_{25/85}$ - value	3740K
Tolerance on $B_{25/85}$ - value	± 0.75 %
Thermal time constant τ 63.2 % (25 °C to oil 85 °C)	15 s
Operating temperature range at zero power	- 25 °C to + 125 °C
Min. dielectric withstanding voltage between the metallic housing and the terminals/NTC	500 V _{AC}
Max. Power	150 mW
R/T values	Refer to table
Climatic category (IEC 60539)	25/125/56
Weight	19 g

FEATURES

- Rugged construction
- Temperature measurement accuracy better than ± 1 °C between 50 °C and 100 °C
- Stainless steel housing
- Housing is 100 % watertight
- High number of thermal cycles resistant (minimum 100 000 cycles)
- Withstanding voltage 500 V (between outer case and terminals/NTC)
- Male terminals 6.3 x 0.8. type IDC rast 5 mm, or solderless terminals FASTON (IEC 760 flat quick connections)
- Compliant to RoHS directive 2002/95/EC
- PVC-free



APPLICATIONS

Sensor used for temperature measurement, sensing and control in:

- Water boilers
- Heating system
- Water and used water systems
- Water and oil tanks
- Consumer appliances
- Industrial appliances
- Solar heating systems

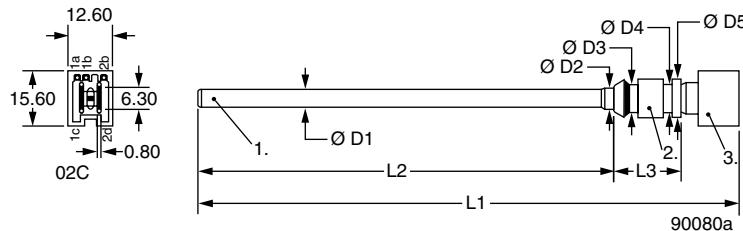
MOUNTING

- O-Ring
- U-Clip or spring
- Rast 5 mm 2 poles connector (refer to polarisation detail), or female FASTON for 6.3 x 0.8 terminals or equivalents

ELECTRICAL DATA AND ORDERING INFORMATION

SAP MATERIAL NO.	12NC	R_{25} - VALUE (kΩ)	$B_{25/85}$ - VALUE (K)	SPQ (Pieces)
NTCAIMME3C90080	2381 645 90080	11 979	3740	100

Ordering information can be found on: www.vishay.com/doc?33036

DIMENSIONS in millimeters

1.	2.	3.	L1	L2	L3	Ø D1	Ø D2	Ø D3	Ø D4	Ø D5
Thermistor NTC position	Stainless steel housing	Connector	153.5 ± 3	118	19	5 + 0.05/- 0.02	6	8.1 ± 0.1 (O-Ring)	8 (Clip)	11 + 0.05/- 0.02

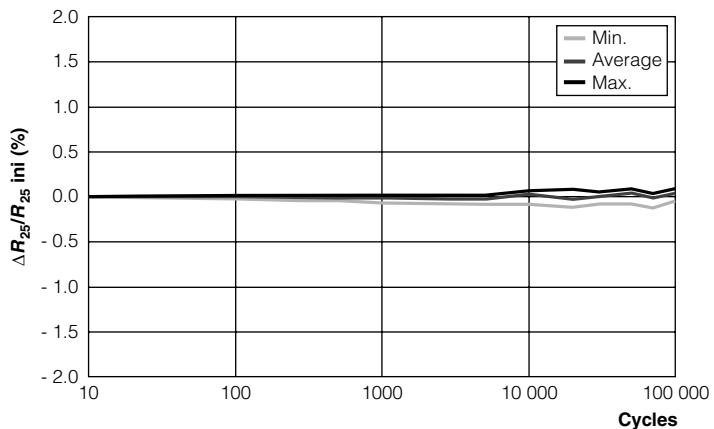
R/T TABLE

TEMP. [°C]	R_T/R_{25}	RESISTANCE [Ω]	$\Delta R/R$ [%]	α [%/K]	ΔT [K]	$R_{\min.}$ [Ω]	$R_{\max.}$ [Ω]
- 25	10.819	129 600	8.86	- 5.52	1.60	118 123	141 078
- 20	8.244	98 762	8.40	- 5.35	1.57	90 465	107 058
- 15	6.335	75 887	7.96	- 5.19	1.53	69 844	81 930
- 10	4.907	58 777	7.54	- 5.03	1.50	54 344	63 210
- 5	3.829	45 874	7.14	- 4.88	1.46	42 600	49 147
0	3.011	36 067	6.75	- 4.74	1.42	33 634	38 500
5	2.384	28 557	6.37	- 4.60	1.38	26 738	30 376
10	1.900	22 765	6.01	- 4.47	1.34	21 398	24 132
15	1.525	18 266	5.66	- 4.34	1.30	17 233	19 299
20	1.231	14 748	5.32	- 4.22	1.26	13 964	15 532
25	1.000	11 979	4.99	- 4.10	1.22	11 382	12 577
30	0.8170	9787	4.67	- 3.99	1.17	9329	10 244
35	0.6712	8040	4.37	- 3.88	1.13	7689	8391
40	0.5543	6640	4.07	- 3.77	1.08	6370	6911
45	0.4602	5513	3.78	- 3.67	1.03	5304	5721
50	0.3839	4599	3.50	- 3.58	0.98	4438	4760
55	0.3218	3855	3.23	- 3.48	0.93	3731	3980
60	0.2710	3247	2.97	- 3.39	0.88	3150	3343
65	0.2293	2746	2.72	- 3.30	0.82	2672	2821
70	0.1947	2333	2.47	- 3.22	0.77	2275	2391
75	0.1661	1990	2.23	- 3.14	0.71	1945	2034
80	0.1422	1704	2.00	- 3.06	0.65	1670	1738
85	0.1223	1465	1.77	- 2.99	0.55	1432	1497
90	0.1055	1264	1.55	- 2.92	0.44	1233	1295
95	0.09135	1094	1.33	- 2.85	0.33	1065	1123
100	0.07936	950.7	1.13	- 2.78	0.23	920.7	980.7
105	0.06918	828.8	0.95	- 2.71	0.13	800.4	857.2
110	0.06050	724.8	0.78	- 2.65	0.03	698.0	751.5
115	0.05307	635.8	0.62	- 2.59	0.01	610.7	660.9
120	0.0467	559.4	0.48	- 2.53	0.00	535.9	582.9
125	0.04121	493.6	0.33	- 2.47	0.00	471.7	515.5

Notes

- Other resistance and tolerances values available
- Other connector polarisations available on request
- Available with insulated leads instead of connector
- Detail mounting drawing or 3D solid model available on request
- Available with platinum elements Pt500 or Pt1000 sensor

RELIABILITY DATA		
TEST	CONDITIONS	$\Delta R_{25}/R_{25}$ (typical)
Dry heat storage (steady state) IEC 60068-2-2	T = 125 °C t = 1000 h	< 1 %
Damp heat storage (steady state) IEC 60068-2-78	T = 85 °C (air) 85 % RH t = 56 days	< 1 %
Rapid temperature cycling (air) IEC 60068-2-14	T1 = -40 °C T2 = 125 °C t < 15 s 10 000 cycles	< 1 %
Rapid temperature cycling (oil)	T1 = 25 °C T2 = 80 °C 100 000 cycles	< 1 %

TYPICAL THERMAL CYCLING RELIABILITY
Thermal Cycling + 25 °C/+ 80 °C


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